Impulse the change in momentum

$$\Delta p = m \Delta v$$

Δ = change in

$$\Delta v = v_f - v_i$$

Brock's Age current 16

Brock's initial age : 13

$\Delta Age = 16 - 13$

$\Delta Age = 3$ years

67" Joe's height final

60" Joe's height in 7th grade

$\Delta h = 67 - 60 = 7"$

$h_f - h_i = \Delta h$

$$\Delta p = p_f - p_i$$
$$= m\Delta v = m(v_f - v_i)$$

$$\boxed{\Delta p = m\Delta v}$$

$$\boxed{\Delta v = v_f - v_i}$$

Newton's First Law

Object in motion will stay in motion unless it's acted upon by outside force

$$\boxed{\Delta p = F\Delta t}$$

$\Delta p = F \Delta t$

FORCE

CONTACT TIME

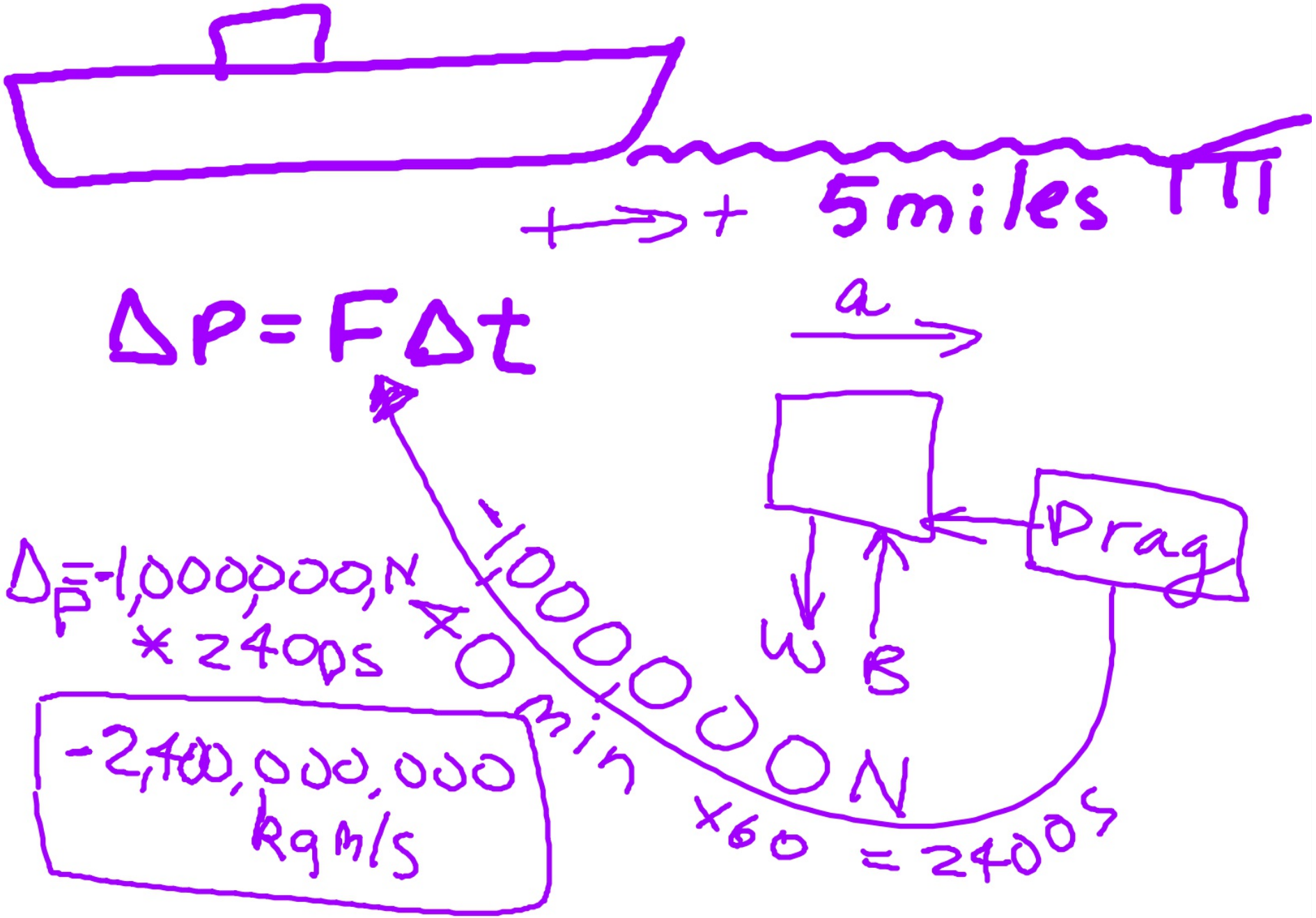
Follow through INCREASES the Contact time

$\Delta P = F \Delta t$

ΔP — CONST.

F — Decreases

Δt — INCREASING


5miles
ΔP=FΔt
a
Drag
W
B
-1000000N
ΔP=-1,000,000N
*2400s
-2,400,000,000
kgm/s
40min
x60 =2400s

$\Delta p = -2{,}400{,}000{,}000 \text{ kg m/s}$

$m = 12{,}000{,}000 \text{ kg}$

What was the ship's velocity before it cut the engines? (v_i)

$v_f = 0$

$\Delta p = m \Delta v$

$\Delta p = m(-v_i)$

$\Delta v = v_f - v_i$

$\Delta v = -v_i$

$$\frac{\Delta p}{m} = \frac{m(-v_i)}{m}$$

$$-v_i = \frac{\Delta p}{m}$$

$$v_i = \frac{-\Delta p}{m} = \left(\frac{2{,}400{,}000{,}000}{12{,}000{,}000}\right)$$

$$v_i = +200 \text{ m/s}$$